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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,786	10/25/2005	Jan Paasonen	125594	3976
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EXAMINER				
JACOBSON, MICHELE LYNN				
ART UNIT		PAPER NUMBER		
1794				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/553,786

Applicant(s)

PAAONEN, JAN

Examiner

MICHELE JACOBSON

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/ISD)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 12/20/05.

DETAILED ACTION

Drawings

1. The drawings are objected to because in Figure 1 and 2 it is impossible to discern what layer the lines coming off the reference numbers are pointing to. In Fig. 1 numbers 4 and 5 and numbers 2 and 3 appear to be pointing at the same layers. In Fig. 2 numbers 2 and 3 and numbers 7 and 8 appear to be pointing at the same layers. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Upper surface 4a is referenced in Para. 25 of the specification but is not labeled in Fig. 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 2 recites the limitation "free-space-containing base layer". There is insufficient antecedent basis for this limitation in the claim. Claim 1 does not recite the limitation that the base layer contains free space nor does claim 2 positively recite this limitation. For the purpose of examination claim 2 will be interpreted as the base layer

of claim 1 which comprises free space containing layer that is formed first on the roll frame and a polymer layer.

5. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 5 recites the broad recitation "a first polymer layer", and the claim also recites the first polymer layer to be comprised of an "adhesive layer" which is the narrower statement of the range/limitation. The claim further recites that "a second polymer layer" may comprise "a middle layer formed of mutually different materials" which is a narrower limitation of the second polymer layer. For the purpose of examination claim 5 will be interpreted to recite the limitation that the base layer comprises a first polymer layer and a second polymer layer.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paasonen et al. U.S. Patent No. 6,409,645 (hereafter referred to as Paasonen) and Watanabe et al. U.S. Patent No. 5,753,165 (hereafter referred to as Watanabe).

8. Paasonen teaches a roll and method of making a roll to be used for papermaking operations. The method recited involves coating a roll with a layer of removable material followed by forming a layer of compressible material on the removable material. (Col. 5, lines 6-17) Next a layer of polymeric material is formed on the layer of compressible material. (Col. 5, lines 17-19) The compressible material is chosen so that it compresses when the sleeve of polymeric material shrinks during cooling. (Col. 4, lines 35-39) The compressible material can be formed from thermoplastic materials and may also contain filler materials such as minerals or metal material. (Col. 4, lines 40-45) The compressible material may also be a three dimensional spacer fabric layer having fibers interwoven between a top layer and a bottom layer fabric. (Col. 5, line 66-Col. 6, line 2) After the sleeve of polymeric material is formed it is next cured. (Col. 5, lines 27-28) As the polymeric material sleeve cools, it shrinks and constricts onto the

Art Unit: 1794

compressible sleeve. (Col. 5, lines 47-53) The roll that the materials are coated on may be removed by removing the removable material or the sleeve formed can remain on the roll. (Col. 6, lines 3-9) During curing, the compressible material advantageously absorbs stresses such that minimal residual stresses are formed in the sleeve produced. (Col. 6, lines 36-38)

9. Paasonen is silent regarding the curing temperature of the outer layer being lower than the curing temperature of the interior layer.

10. Watanabe teaches a process for producing a hard roll the method comprising the steps of A) disposing an outer layer forming outer mold around a metal roll core provided in an upright position at a predetermined distance from the core to form between the roll core and the outer mold a resin material casting space having a closed lower end B) casting a liquid thermosetting resin material into the space C) heating the thermosetting resin material from outside the outer mold to cure a major portion of the material and form an outer layer resin intermediate body while cooling the material from the roll core side to hold a portion of the material in a viscous liquid state on the surface of the roll core and leave a viscous liquid resin material layer inside the outer layer resin intermediate body D) subsequently cooling the outer layer resin intermediate body from outside the outer mold to contract the intermediate body chiefly by thermal shrinkage of the intermediate body and allowing an excess of the material of the viscous liquid resin material layer inside the intermediate body to be forced out beyond the upper end of the intermediate body with the contraction of the intermediate body while heating the viscous liquid resin material layer from the roll core side to cure the remaining viscous

liquid resin material and form a cured thermosetting resin outer layer joined to the outer periphery of the roll core and finally E) cutting at least an upper end portion of the thermosetting resin outer layer to form an outer layer end face approximately perpendicular to the roll core. (Col. 2, lines 15-41) The metal roll core recited may additionally have a fiber reinforced winding layer disposed on it. (Col. 2, lines 50-51) The metal roll core is also hollow and has a cooling and heating fluid passage in it interior. (Col.2, lines 56-60) Because the outer layer of the resin is cured while the interior layer of the resin is kept at a lower temperature and in a viscous, compressible state, the shrinkage of the outer layer of the resin layer occurs with no residual stress and no cracking. (Col. 4, lines 22-24)

11. Both Paasonen and Watanabe are directed towards resin coated rolls and their methods of manufacture and both patents involve the shrinkage of an outer resin layer to compress an interior resin layer for the formation of a roll. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have applied the concept of having the interior of the hard coat roll remain in a viscous state to be cured later while the exterior of the hard coat roll was curing in order to obtain the benefit of no residual stress and no cracking in the finished product taught by Watanabe (Col. 4, lines 22-24) to the invention of Paasonen. While Watanabe accomplished this by keeping the interior of the roll cooled while the exterior was heated for curing, it would have been obvious to one of ordinary skill in the art at the time the invention was made that this beneficial arrangement could also be accomplished by selecting a compressible thermoplastic layer as recited by Paasonen with a higher cure

Art Unit: 1794

temperature than the polymeric exterior layer recited by Paasonen. The selection of materials with different cure temperatures combined with the method of applying the layers on the roll recited by Paasonen would have been obvious to one of ordinary skill in the art to produce the method and article as claimed in claims 1 and 7 respectively.

12. Watanabe teaches a resin layer of one material where the exterior is cured and shrinks prior to the interior curing and shrinking. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the material for the interior layer of Paasonen to not only have a higher cure temperature than the exterior layer but to also shrink as claimed in claim 3.

13. Paasonen recites the use of a compressible layer as the interior layer for the roll. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have disposed a compressible layer as recited by Paasonen under the polymer layer of the base layer as a void containing matrix that could be compressed upon curing and shrinkage of the surface layer and as claimed in claims 2. Additionally, the compressible layer recited by Paasonen can be comprised of fiber-based polymer material. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have disposed a fiber reinforced polymer layer under the polymer layer of the base layer of the roll as claimed in claims 4, 5 and 6.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHELE JACOBSON whose telephone number is

Art Unit: 1794

(571)272-8905. The examiner can normally be reached on Monday-Thursday 8:30 AM-7 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michele L. Jacobson
Examiner /M. J./
Art Unit 1794

/Carol Chaney/

Supervisory Patent Examiner, Art Unit 1794